

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of
PANAMSAT LICENSEE CORP.
Application for authority to launch
and operate a C/Ku-band hybrid
Fixed-Satellite Service space station
File No. 111-SAT-P/LA-97
SAT-AMD-19990615-00067

ORDER AND AUTHORIZATION

Adopted: February 25, 2000

Released: February 25, 2000

By the Chief, Satellite and Radiocommunication Division:

I. INTRODUCTION

1. By this Order, we grant PanAmSat Licensee Corp. ("PanAmSat") authority to operate its Galaxy XI satellite, first, on an interim basis at 99° W.L., and, ultimately, at its assigned 91° W.L. orbit location. This will allow PanAmSat to continue to provide service to customers who have come to rely on satellite facilities that Galaxy XI will replace.

II. BACKGROUND

2. In August 1997, PanAmSat filed an application for authority to launch and operate a C/Ku-band hybrid communications satellite known as Galaxy II(H) at 74° W.L. In June 1999, PanAmSat amended the application to rename the satellite Galaxy XI and to relocate Galaxy XI from 74° W.L. to 91° W.L. PanAmSat states that the most efficient use of Galaxy XI's capacity would be to station it at 91° W.L. as a replacement for the Galaxy VII satellite.

1 See PanAmSat Application, File No. 111-SAT-P/LA-97, filed on August 29, 1997. The C-band refers to the 3700-4200/5925-6425 MHz frequency bands. The Ku-band refers to both the "conventional" 11.7-12.2 GHz/14.0-14.5 GHz frequency bands, and the "extended" 13.75-14.0 GHz and 10.95-11.2 GHz bands.

2 PanAmSat Amendment to Application, File No. SAT-AMD-19990615-00067, filed on June 15, 1999.

Because of the untimely loss of the Galaxy IV satellite in May 1998, however, PanAmSat further requests authority to locate Galaxy XI, on an interim basis, at the 99° W.L. orbital location previously occupied by Galaxy IV.³ PanAmSat also proposes to modify its spacecraft to add the use of “extended Ku-band frequencies” for both domestic and international services and to expand the spacecraft’s coverage area for both standard and extended Ku-band to include South America.⁴ According to PanAmSat, this would allow it to continue to provide services to its customers from that location pending the launch of the Galaxy IV-R satellite in the year 2000. Once Galaxy IV-R commences service, PanAmSat will relocate Galaxy XI to 91° W.L. Galaxy XI will provide a wide range of communications services, including programming distribution, VSAT service, video backhaul, satellite news gathering, teleconferencing, and high-speed image transmissions, to satellite users in North, South, and Central America. Galaxy XI was launched on December 21, 1999.⁵

III. DISCUSSION

3. We find that PanAmSat is legally, financially, technically and otherwise qualified to launch and operate the Galaxy XI satellite and that a grant of its application will serve the public interest.⁶ PanAmSat's legal qualifications are a matter of record and the Commission has on several occasions found that PanAmSat possesses the necessary legal qualifications to be a

³ PanAmSat states that the C-band Galaxy VI satellite has been operating at 99° W.L. on an interim basis pursuant to a grant of special temporary authority. See *PanAmSat Corp.*, DA-98-969 (released May 20, 1998). Once Galaxy XI commences operation at 91° W.L., PanAmSat states that Galaxy VI will be relocated to another orbit location assigned to PanAmSat based on the requirements of PanAmSat's customers at that time. See PanAmSat Amendment to Application, p. 2, note 2.

⁴ See *Amendment to the Commission's Regulatory Policies Governing Domestic Fixed-Satellites and Separate International Satellite Systems*, Report and Order, 11 FCC Rcd 2429 (1996) (“DISCO I”). DISCO I removed the distinctions between domestic fixed-satellites and international separate system satellites. Therefore, international coverage, including South American coverage, by a domestic fixed-satellite licensee is now routinely available, subject to appropriate international coordination, in accordance with the ITU Radio Regulations. *Id.*, 11 FCC Rcd at 2430-2434. In particular, coordination with domestic and foreign-licensed systems is required, including the requirement that U.S.-licensed systems coordinate with domestic systems that may want to serve international markets, such as South America.

⁵ The Commission granted PanAmSat special temporary authority to launch Galaxy XI and conduct in-orbit testing at 78.5° W.L. See Letter from Thomas S. Tycz, Chief, Satellite and Radiocommunication Division to Joseph A. Godles, Attorney for PanAmSat (December 21, 1999).

⁶ See *Licensing Space Stations in the Domestic Fixed-Satellite Service*, 58 R.R.2d (P&F) 1267, 1272-3 (1985) (*1985 Orbit Assignment Order*).

Commission licensee. With respect to financial qualifications, PanAmSat provided a balance sheet and income statements of its parent, Hughes Electronic Corporation ("HEC"), demonstrating adequate funds to finance the construction, launch, and operation for one year of Galaxy XI.⁷ HEC's balance sheet as of December 31, 1998 shows total current assets of \$3.8 billion which is more than adequate to cover PanAmSat's projected cost of \$297 million to construct, launch, and operate Galaxy XI for one year.⁸ Further, we find that Galaxy XI complies with all Commission technical requirements.

4. To ensure service continuity to both operators and their customers, the Commission will generally authorize replacement satellites at the same location as the satellites they are replacing.⁹ Here, the Galaxy XI satellite will replace the Galaxy VII satellite at 91° W.L. when it reaches its end-of-life in 2000 but, in the interim, will replace the Galaxy IV satellite at 99° W.L until the Galaxy IV-R satellite is operational. Thus, use of Galaxy XI at these locations will ensure continuity of service to PanAmSat customers.

5. Harris Corporation-Farion Division ("Harris") and Digital Microwave Corporation ("DMC") filed joint comments in response to PanAmSat's application, noting their concern that PanAmSat's proposed fixed-satellite service ("FSS") system could cause harm to existing and potential fixed service operations.¹⁰ According to Harris and DMC, if PanAmSat provides FSS in the United States in the 10.95-11.2 GHz and 11.7-12.2 GHz bands, its operations may cause harmful interference to fixed-service operations in these bands. Consequently, Harris and DMC argue that a grant of the application must be deferred until a study is conducted to determine whether FSS and fixed terrestrial service systems can operate compatibly in these frequency bands.¹¹ Harris and DMC also argue that to facilitate co-primary

⁷ See Letter from Joseph A. Godles, Esq., Attorney for PanAmSat, to FCC Secretary Magalie Salas (August 12, 1999). On September 8, 1999, PanAmSat provided updated cost information. See Letter from Joseph A. Godles, Esq., Attorney for PanAmSat, to FCC Secretary Magalie Salas (September 8, 1999).

⁸ An applicant relying on internal financing must submit a balance sheet documenting current assets and operating income sufficient to cover its costs. Current assets -- which include cash, inventory, and accounts receivable -- provide a general measure of a company's ability to raise funds on the basis of its on-going operations. See 47 C.F.R. § 25.114(c)(13); *1985 Orbit Assignment Order* at 1272.

⁹ *AT&T Corp.*, 11 FCC Red. 15038 (1996). See also *Hughes Communications Galaxy, Inc.*, 3 FCC Red. 6989 (1988).

¹⁰ Harris and DMC are major manufacturers of terrestrial fixed point-to-point microwave radio service equipment.

¹¹ Harris and DMC believe that satellite and terrestrial sharing studies are needed because the International Telecommunication Union ("ITU") Radio Regulations, that include coordination criteria for earth stations

use of the 11 GHz band in the United States satellite applicants must include the following additional information in their applications: (1) earth station deployment plans, antenna size and elevation, receiver noise floor, orbit, antenna, transmit power, and bandwidth characteristics, and (2) the number of satellites in its system, elevation, orbit, antenna, transmit power, and bandwidth characteristics of the satellites.

6. PanAmSat states that its proposed operations in the 10.95-11.2 GHz and 11.7-12.2 GHz bands are in accord with the Table of Frequency Allocations. Specifically, PanAmSat notes that the 11.7-12.2 GHz band is allocated to the FSS on a primary basis.¹² PanAmSat also notes that Commission rules expressly contemplate sharing between co-primary terrestrial and satellite operations in the 10.95-11.2 GHz band.¹³ PanAmSat states that because it will comply with the power flux density limit specified in the Commission's rules for satellite systems operating in these bands, its operations will not interfere with co-primary terrestrial systems operating in the same band.

7. We find no basis for Harris and DMC's argument that we should defer grant of PanAmSat's application because operation of Galaxy XI in the 11.7-12.2 GHz frequency band will result in harmful interference to existing or planned fixed-service operations in that band. PanAmSat's proposed use of "conventional" Ku-band frequencies is in accord with the primary allocation to FSS set forth in the Table of Frequency Allocations. The fixed services operate in the 11.7-12.1 GHz frequency bands on a secondary basis and are not protected against potential interference from primary services.¹⁴ Moreover, there is no allocation in the international Radio Regulations to the fixed-services in the 12.1-12.2 GHz band in Region 2. We also note that the

and terrestrial stations that are also contained in Section 25.251(b) of the Commission's Rules, 47 C.F.R. § 25.251(b), are being changed. We see no connection between prospective changes in the ITU Radio Regulations for earth station coordination with terrestrial stations and our consideration of PanAmSat's application to launch and operate a replacement satellite.

¹² See 47 C.F.R. § 25.208(b). Allocation of a given frequency band for a particular service on a primary basis entitles operators to protection against harmful interference from stations of "secondary" services. Further, secondary services cannot claim protection from harmful interference caused by stations of a primary service. See 47 C.F.R. §§ 2.104(d) and 2.105(c).

¹³ Services allocated to particular frequency bands on "co-primary" basis have equal rights to operate in those frequencies.

¹⁴ In ITU Region 2, which includes the United States, the 11.7-12.1 GHz frequency band is allocated to FSS on a primary basis. Footnote 837 to the Table of Frequency Allocations specifies that in Canada, Mexico and the United States use of the 11.7-12.1 GHz frequency band for FS is on a secondary basis. 47 C.F.R. § 2.106.

PanAmSat satellites that Galaxy XI will replace are already operating in the 11.7-12.2 GHz frequency band, with no reported cases of interference to terrestrial stations.

8. There is also no basis for Harris and DMC's concern about the potential for interference between fixed service systems and FSS systems in the 10.95-11.2 GHz frequency band. Domestically and internationally, the 10.7-11.7 GHz frequency band is allocated to the fixed service and to the FSS on a co-primary basis for space-to-Earth transmissions. Given the power flux density limits specified in the Commission's rules for operations in these bands, we do not believe that operation of Galaxy XI will cause interference to other co-primary services in this band.¹⁵

9. Since PanAmSat's proposed operation of the Galaxy XI satellite in the 10.95-11.2 GHz and 11.7-12.2 GHz bands is in accord with the Table of Frequency Allocations and other Commission rules, we find no need to condition this authorization on the completion of future FSS/fixed service sharing studies or the submission of additional information by PanAmSat.¹⁶ Harris and DMC's request for a study and additional information is based on its desire to facilitate co-primary use of the conventional Ku-band in the future.¹⁷ This consideration is outside the scope of our action here and has no bearing on whether PanAmSat should be authorized to launch and operate Galaxy XI to replace existing satellites. We also note that Section 25.251(b) of the Commission's Rules, 47 C.F.R. § 25.251(b), which the commenters cite as support for its argument that PanAmSat should supply the Commission with additional information, pertains to the coordination of earth stations with terrestrial stations. These rules will be addressed when considering earth station applications that propose to operate with Galaxy XI.

¹⁵ Use of the 10.7-11.7 GHz frequency band by the FSS in the United States is subject to certain restrictions. Specifically, non-Government footnote NG104 to the U.S. Table of Frequency Allocations states that the use of the bands 10.7-11.7 GHz in the fixed-satellite service is limited to international systems, *i.e.* "other than domestic systems." The Commission interpreted this language to mean that U.S.-licensed systems may use the 10.7-11.7 GHz band to provide international service only. *See* PanAmSat Licensee Corp., DA 99-948 (released May 18, 1999).

¹⁶ We note that PanAmSat's application complies with Section 25.114 of the Commission's rules, which lists the information that must accompany space station applications.

¹⁷ PanAmSat also argues that Harris and DMC's comments are misplaced because they address frequencies listed in the Commission's initial Public Notice (Report No. SPB-11) and those frequencies were inadvertently omitted and added in an erratum to that public notice. According to PanAmSat, only those frequencies that were inadvertently omitted (10.95-11.2 GHz) should be the subject of its comments. Given the nature of Harris and DMC's comments, and the need to clarify the rights of FSS and fixed service operators in the conventional and extended Ku-bands, we believe the public interest is best served in this instance by addressing all of issues raised by Harris and DMC. *See* Public Notice Report No. SPB-125 (May 20, 1998).

10. 13.75-14.0 GHz Frequency Band. The 13.75-14.0 GHz band has been allocated domestically and internationally to the fixed-satellite service (FSS), subject to restrictions embodied in certain footnotes to the regulations. In particular, footnote S5.503A to the International Telecommunication Union (ITU) Radio Regulations requires that, prior to 1 January 2000, the FSS shall not cause harmful interference to non-geostationary space stations in the space research and Earth exploration-satellite services.¹⁸ There are further restrictions placed on the FSS in footnotes S5.502 and S5.503.¹⁹ In addition, concerning domestic allocations, footnote US337 to 47 C.F.R. § 2.106 requires that coordination of earth stations operating in the 13.75-13.80 GHz band through the National Telecommunications and Information Administration (NTIA) Interdepartment Radio Advisory Committee's Frequency Assignment Subcommittee in order to minimize interference to the forward space-to-space link of the National Aeronautics and Space Administration's Tracking and Data Relay Satellite System.²⁰ In this regard, we have received a letter from the NTIA requesting that we identify these requirements in any grant of authority to operate a satellite in the 13.75-14.0 GHz band.²¹ We, therefore, will require that the operations of the Galaxy XI satellite in the band 13.75-14.0 GHz be consistent with these international and domestic regulatory footnotes.

11. Finally, we grant PanAmSat's request to include coverage of South America from the Galaxy XI spacecraft. We note that DISCO I changed the policy that previously limited domestic fixed-satellites from providing international service.²² The new policy, instead,

¹⁸ Footnote S5.503A further states that: "...when planning earth stations in the fixed-satellite service to be brought into service between 1 January 2000 and 1 January 2001, in order to accommodate the needs of spaceborne precipitation radars operating in the band 13.793-13.805 GHz, advantage should be taken of the consultation process and the information given in Recommendation ITU-R SA.1071."

¹⁹ In particular, footnote S5.502 to the international Radio Regulations places certain restrictions on the minimum equivalent isotropically radiated power (e.i.r.p.) and minimum antenna size for earth stations operating in this band. Footnote S5.503 places a limit on FSS earth station e.i.r.p. spectral density in the 13.772-13.778 GHz band until those geostationary space stations in the space research service for which advance publication information was received by the ITU prior to 31 January 1992 cease to operate in this band.

²⁰ 47 C.F.R. § 2.106 footnote US337 specifically states the following: "In the band 13.75-13.80 GHz, earth stations in the fixed-satellite service shall be coordinated on a case-by-case basis through the frequency assignment subcommittee in order to minimize harmful interference to the Tracking and Data Relay Satellite System's forward space-to-space link (TDRSS forward link-to-LEO)".

²¹ See letter from William Hatch, Acting Associate Administrator, Office of Spectrum Management, NTIA, to Roderick Porter, Acting Chief, International Bureau, FCC (May 11, 1999).

²² See DISCO I, 11 FCC Rcd at 2430-2432.

eliminated the distinction between U.S.-licensed domestic fixed-satellites and international separate system satellites.²³ Therefore, Galaxy XI may serve South America in this situation, subject to the usual requirements of § 25.211 concerning international coordination and the requirement to comply with applicable laws regulations, rules, and licensing procedures in the countries it wishes to serve.²⁴

IV. CONCLUSION AND ORDERING CLAUSES

12. As set forth above, PanAmSat possesses the requisite legal, financial, and technical qualifications to construct, launch and operate the Galaxy XI satellite. We also find that a grant of PanAmSat's application will serve the public interest by ensuring continuity of service for the customers of those satellites that Galaxy XI will replace.

13. Accordingly, IT IS ORDERED that PanAmSat's application, File No. SAT-AMD-19990615-00067, as amended, IS GRANTED and PanAmSat is authorized to launch and operate its Galaxy XI satellite at 99° W.L. on an interim basis pending launch and operation of the Galaxy IV-R satellite into that location, and then operate at 91° W.L. in accordance with terms, conditions, and technical specifications set forth in its application.

14. IT IS FURTHER ORDERED that, PanAmSat shall prepare the necessary information, as may be required, for submission to the ITU to initiate and complete the advance publication, international coordination, and notification process of this space station in accordance with the ITU Radio Regulations. We also remind all licensees that no protection from interference caused by radio stations authorized by other administrations is guaranteed unless coordination procedures are timely completed or, with respect to individual administrations, by successfully completing coordination agreements. Any radio station authorization for which coordination has not been completed may be subject to additional terms and conditions as required to effect coordination of the frequency assignments of other administrations. *See* 47 C.F.R. § 25.111(b).

15. IT IS FURTHER ORDERED that the operation of the Galaxy XI satellite network in the 13.75-14.0 GHz band shall be in accordance with footnotes S5.502 and S5.503 to the international Radio Regulations and footnote US337 to 47 C.F.R. § 2.106.

16. IT IS FURTHER ORDERED that the operation of the Galaxy XI satellite network in the 13.75-14.0 GHz band shall be in accordance with footnote S5.503A to the

²³ *Id* at 2440.

²⁴ On February 24, 2000, PanAmSat Corporation filed a request for special temporary authority, for up to 180 days, to relocate Galaxy XI to 99° W.L., conduct KU-band in-orbit testing and commence operation of the satellite. This Order and Authorization renders PanAmSat's February 24, 2000 request moot.

international Radio Regulations.

17. IT IS FURTHER ORDERED that the operation of the Galaxy XI satellite network in the 10.95-11.2 GHz band is limited to international operations in accordance with NG104.

18. IT IS FURTHER ORDERED that PanAmSat is obliged to comply with the applicable laws, regulations, rules, and licensing procedures in those countries it proposes to serve.

19. IT IS FURTHER ORDERED that the license term for the Galaxy XI satellite is ten years and will begin to run on the date the licensee certifies to the Commission that the satellite has been successfully placed into orbit and its operation fully conforms to the terms and conditions of this authorization.

20. PanAmSat is afforded thirty days from the date of release of this order and authorization to decline this authorization as conditioned. Failure to respond within this period will constitute formal acceptance of the authorization as conditioned.

21. The Order is issued pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 C.F.R. § 0.261, and is effective upon adoption. Petitions for reconsideration under Section 1.106 or applications for review under Section 1.115 of the Commission's rules, 47 C.F.R. §§ 1.106, 1.115, may be filed within 30 days of the date of the release of this order (*See* 47 C.F.R. § 1.4(b)(2)).

FEDERAL COMMUNICATIONS COMMISSION

Thomas S. Tycz
Chief
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